10007

University of Toronto
Computer Centre
10 King's College Road
TORONTO Ontario
M5S 1A1 CANADA.

416/928-2694
W.E. Greene, Editor

GENERAL NEWS — PAGE

Computers, Exams and Biology 110...................... 1/2
Personnel Changes................................... 3

SYSTEM/370 SERVICES
Hours of Service--Dominion Day Weekend............... 4
New Mapdisk Available............................... 4
SPSS Version 5.01................................... 4
S/370 Accounting Changes............................ 5/6/7
Userbook Section 3 Updates Issued................... 8
Interactive FORTRAN and PL/1 with TSO............... 9/10
S/370 Reliability................................... 10/11/12
HSJS News and Monthly Statistics.................... 12/13

INTERACTIVE TERMINAL SYSTEMS

Interactive Systems Reliability..................... 14

SUPPLEMENT

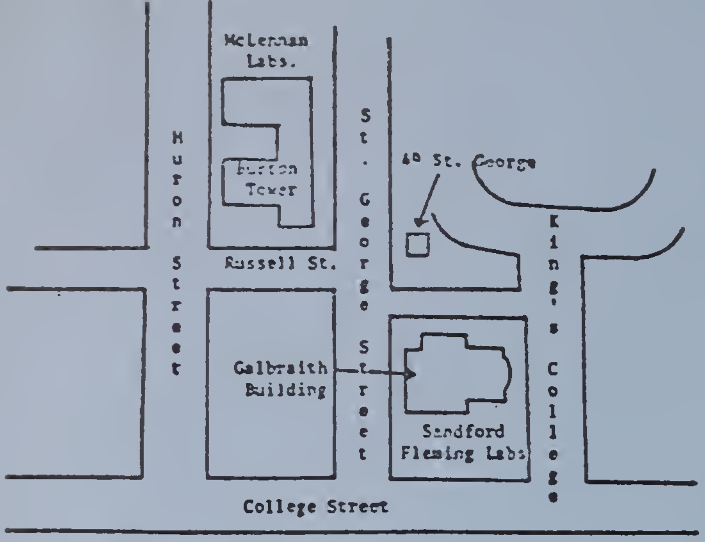
Recent Acquisitions in the Computer Science Library... 14/15

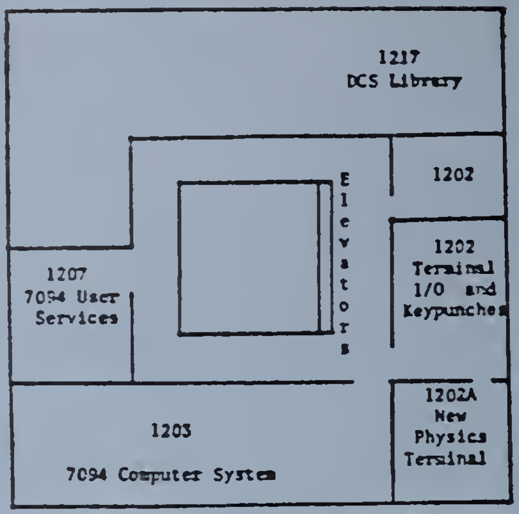
University of Toronto

May 74

No. 112

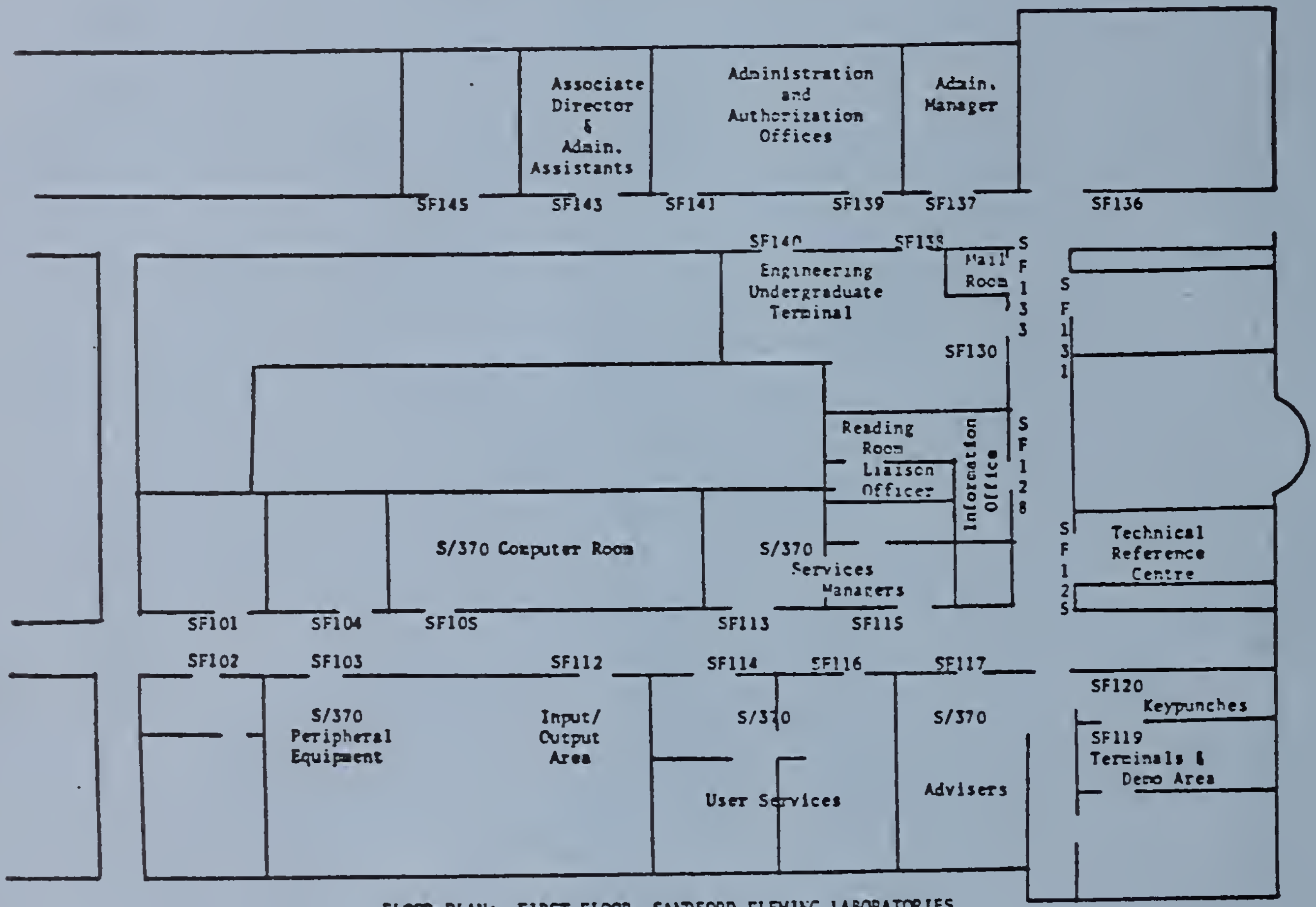
COMPUTERNEWS



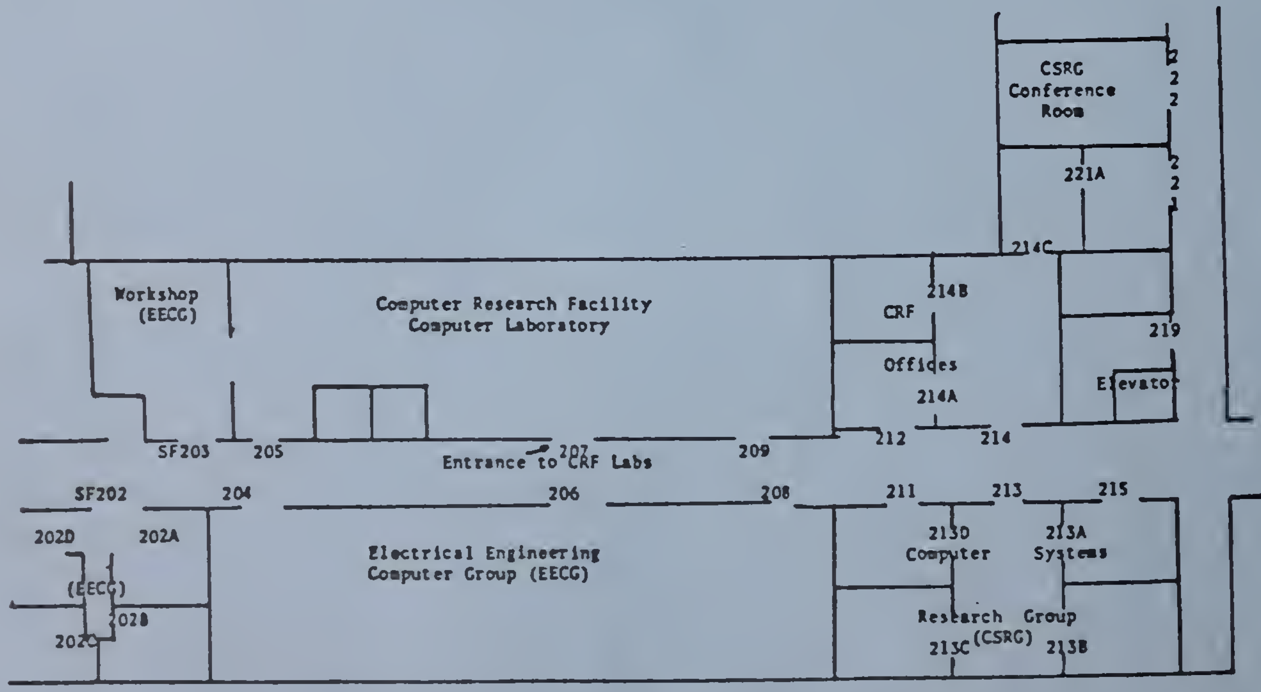


FLOOR PLAN: TWELFTH FLOOR, BURTON TOWER

UNIVERSITY OF TORONTO COMPUTER CENTRE



FLOOR PLAN: FIRST FLOOR, SANDFORD FLEMING LABORATORIES



FLOOR PLAN: SECOND FLOOR, SANDFORD FLEMING LABORATORIES

COMPUTERS, EXAMS AND BIOLOGY 110

Biology 110 has tried several approaches to marking examinations of large numbers of students. One of the more successful and reliable ways has been to give examinations that are answerable on an optical scanning sheet. These sheets are converted by an optical scanning machine into punched cards, and the cards are read into an APL file for checking and marking. The marks are then added automatically to our master course file by APL functions using the Brown Box facility.

To start with, there is the optical scanning sheet (Fig 1). This is a sheet of paper (8 1/2" x 11 1/2") with purple printing on it, corresponding to the 80 columns of an IBM punched card. The format is pleasing to work with for the student and examiner. Since this is a general form, Biology 110 has altered it somewhat by printing over it (Fig 2). This enables us to make a custom form (within limits) while retaining the generality and low cost of this particular form. The over-printing was done on an office offset machine.

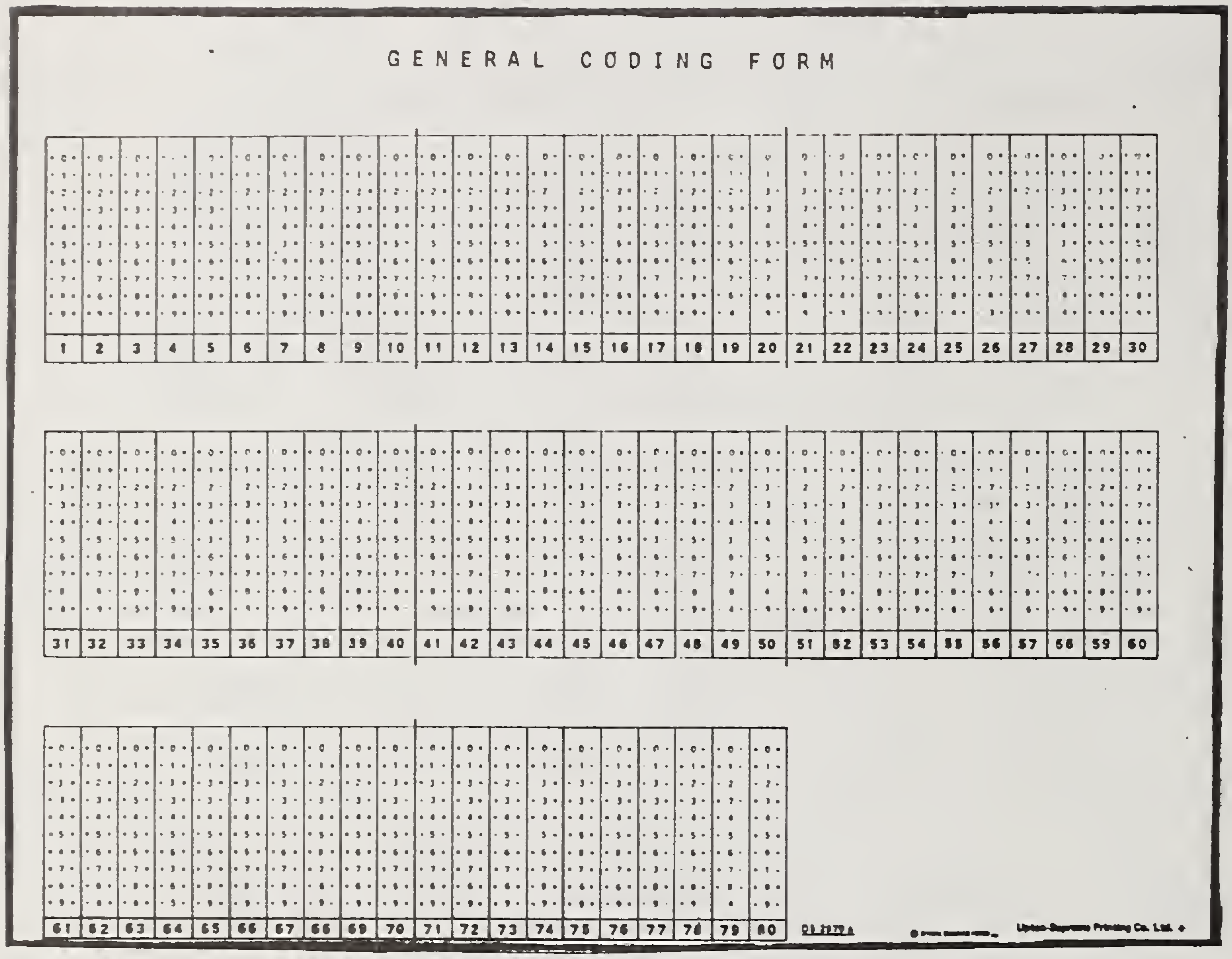
The student fills in his name, Biology number, and the name of the exam. (This form will be used as a master record in case of a query.) The student marks his biology number in columns 61, 62, 63, 64 as per the instructions. This will serve to identify him to the computer. He then answers multiple choice questions by penciling in the answer corresponding to the question number.

The top left corner has the number 1, and column 70 has 1 marked. This indicates page 1. Sixty questions are allowed per page. In addition, columns 79 and 80 should not be used (optical scanner restrictions). The forms are then taken to the optical scanner at Medical Science and converted into a deck of punched cards (about 1,000 sheets per hour after setting up). The scanner has facilities built in to check that certain columns are marked (ie. Biology number), and that there is only one answer per question. Rejected sheets are separated, and the corresponding cards have an error code punched on them.

The card deck is then taken to any remote terminal and read into an APL file using the XFR routine (transfers files from the 370 to the 360 and vice versa). The exams/cards are then checked by our APL routines. All the invalid exams are rejected for personal checking. Each invalid exam is fully identified and separated by our APL functions. It is immediately corrected at our local APL timesharing terminal (if possible) and re-inserted in the file of good exams. The good exams are marked, and the marks are added to the Biology 110 APL record keeping files. (More on APL marking and Biology 110 record keeping in later issues.)

FOR FURTHER INFORMATION CONTACT THE UTCC LIAISON OFFICE.

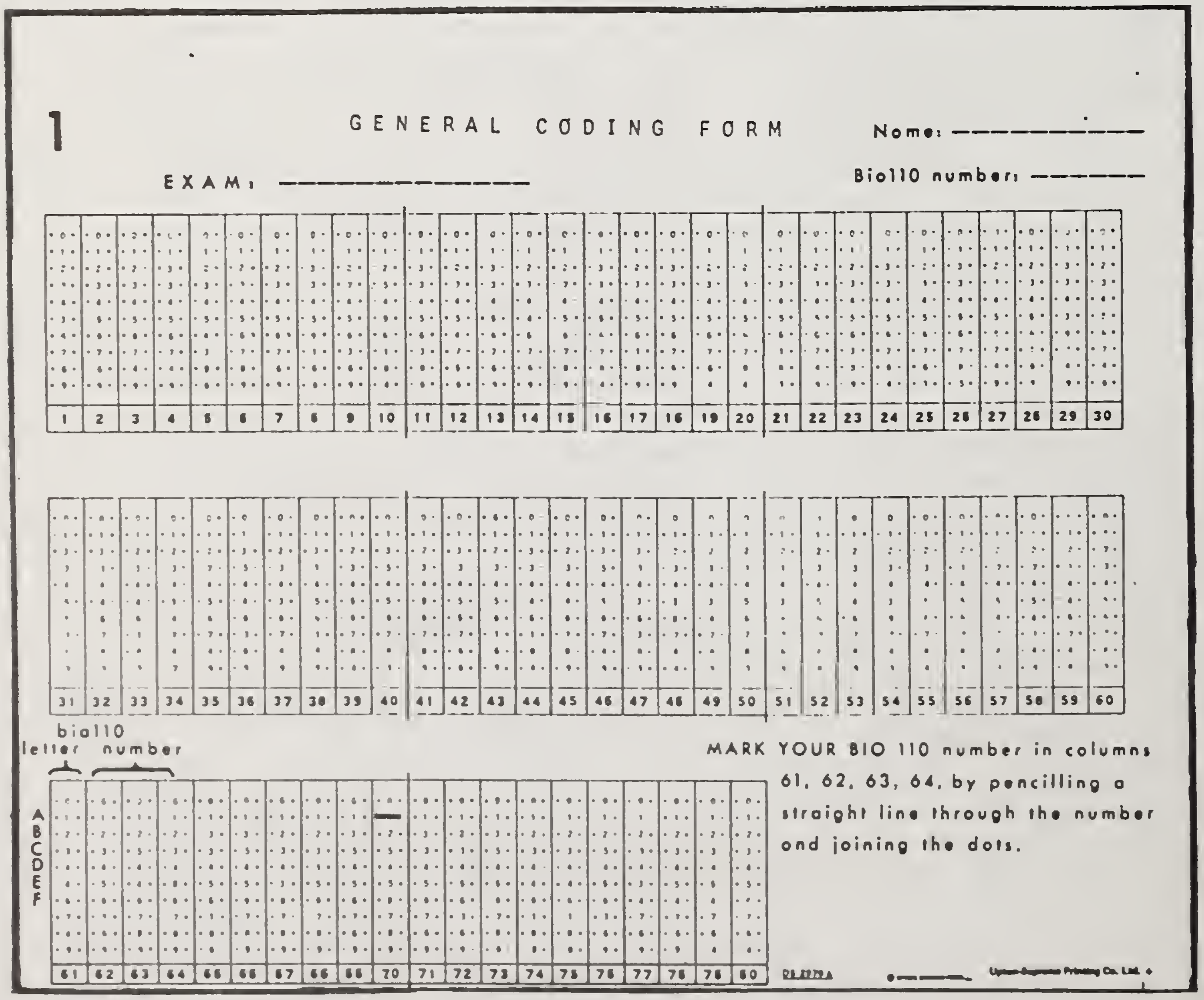
John Kornatowski



GENERAL CODING FORM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Fig. 1



1

GENERAL CODING FORM

Name: ____________

EXAM: ______________

Bio110 number: _______

bio110
letter number

A B C D E F

MARK YOUR BIO 110 number in columns 61, 62, 63, 64, by pencilling a straight line through the number and joining the dots.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Fig. 2

PERSONNEL CHANGES

Farewells this month go to Laurie Soul, Margaret Niemi, both of System/370, and to Barbara Watkins, secretary to Dr. Wilson. Good luck to all in your new endeavours.

The newcomers are Jerry Rakowski, computer operator for Interactive Systems; Bob Schulte, programmer, Lauren Macdonald, secretary, and Barbara Ablett, accounting clerk, all three joining System/370. Hope you all will enjoy working with us.

Trudy Holland

Digitized by the Internet Archive
in 2018 with funding from
University of Toronto

https://archive.org/details/computernewsmay1112wegr

HOURS OF SERVICE -- DOMINION DAY WEEKEND

At of the time of this writing, we are unable to announce definite hours of service for June 29 and 30. The reason for this is that these two days may be used for a engineering upgrade to the 370/165 channels. The plans for this upgrade have not yet been confirmed. Users are directed toward terminal bulletin boards and HOTNEWS for further announcements. Service will not be available on Dominion Day, July 1.

Don Gibson

NEW MAPDISK AVAILABLE

S/370 Services has obtained a new version of the MAPDISK program from the Triangle Universities Computing Centre. The new MAPDISK program which maps 2314 and 3330 disk packs will be used to obtain the online disk pack listings available for reference in the Advising Office, Room SF117. The new version will replace the old version of the program which is used by the MAPDISK procedure currently documented in USERBOOK 3.4250.

If you are using the current MAPDISK procedure and would like to obtain information on the features of the new program, please call Herb Kugel at 928-7286.

Herb Kugel

SPSS VERSION 5.01

An updated version of SPSS, Version 5.01, has been available for use for the last two months. An additional JCL card is required to access this version:

```
//STEPLIB DD DSN=USER.SPSSLIB.V5S,DISP=SHR
```

Also a slight increase in core size to approximately 210K is required with whichever of the three established catalogued procedures are used. The //STEPLIB DD card should be placed in the JCL deck just after one of the following:

```
// EXEC SPSS,CORE=210K
// EXEC SPSSTP,CORE=210K
// EXEC SPSSDS,CORE=210K
```

As with all new versions of programs, SPSS, Version 5 has had some bugs reported in it. Updates have been applied to the original Version 5 module to take care of bugs discovered, and the result is Version 5.01. In addition, two new bugs have been found in Version 5.01:

1. To obtain factor scores for each case using the FACSCORE option (contrary to the documentation), both STATISTICS 1 and 7 in combination (at least) must be specified (otherwise no factor scores are output).

2. In an EDIT run, no input data should be included after either a READ Input Data card or after a READ MATRIX card. If data is included, this results in SPSS error #1.

Len Prepas

S/370 ACCOUNTING CHANGES

(EDITORS NOTE: The following two letters were sent out on April 16. They are reprinted here for any one who may not have received them.)

To: Computer Centre Account Holders

From: Stan Yagi, Manager
System/370 Services

Re: SYSTEM/370 SERVICES ACCESS CODES

UTCC has been developing new techniques to improve the accounting facilities for its users.

Currently, account holders are familiar with the term "Authorization Code", which served a dual purpose. The "Authorization Code" was used as the Computer Centre Account into which funds were deposited for purchasing all UTCC services. Also, the "Authorization Code" was used as the access code on the S/370-165. One of the difficulties with this dual use of the "Authorization Code" was that account holders found it difficult to control their funds. In order to get around this problem, many bypass techniques were employed by the Accounting Office to improve the service to users.

With the increased concern for fund control and code security, new accounting facilities are required. Also new accounting nomenclature is required.

A Computer Centre Account will be the central account into which funds are deposited for purchasing all UTCC services. Users establish Accounts through the Accounting Office before any service offered by UTCC can be accessed. The Account Number replaces the "Authorization Code" as the central control account.

Access Codes are the individual codes used to access the different services offered by UTCC. A System/370 Services Access Code is required to access any System/370 service. Access Code usage is charged to a Computer Centre Account.

The introduction of Access Codes introduces three major improvements for users of System/370 Services:

1. Multiple Access Codes may now be opened against a single Computer Centre Account.
2. Individual service (e.g. TSO, Online datasets, Tape/Disk rental, keypunching) available to an Access Code can be controlled by users.
3. The three character alphabetic portion of the Access Code may be changed by user request.

Current users of System/370 Services who wish no change in status with either the funds allocated to the Computer Centre Account or with individual Access Codes are not required to take any action. In this case the same four digits of their "Authorization

...cont'd

S/370 ACCOUNTING CHANGES Cont'd...

Code" will be used both as the Computer Centre Account Number and the System/370 Services Access Code and the three character prefix of the "Authorization Code" will be taken as the initial Access Code password. These users however should be aware of the distinction between the Account Number and the Access Code.

The monthly accounting report that the Computer Centre Account holder receives has been slightly modified. The modification consists of the inclusion of the Access Code in the programmer name field for HASP and TSO job charges and in the dataset name field for System/370 online storage charges.

Several Computer Centre procedures have been revised due to this expanded service. Ms. Barbara Ablett, System/370 Services Access Code clerk, SF143, 928-5557, is available to handle all inquiries concerning System/370 Services Access Codes. The Accounting Office, SF139, 928-7148 or 928-8702, will continue to handle all inquiries relating to Computer Centre Accounts.

Please do not hesitate to call me at 928-7331 about the new nomenclature or procedures.

To: System 370 Service Users

From: Stan Yagi, Manager
System/370 Services

Re: SYSTEM/370 SERVICES ACCESS CODES

System/370 Services has expanded its accounting facilities to provide better control and security of funds and codes. New nomenclature has been introduced to distinguish between the Computer Centre Account (total fund control for all UTCC services) and the System/370 Services Access Code (fund and access control for one or more System/370 services). More details are provided in a memorandum sent to all Computer Centre Account holders.

An Access Code is similar to the old "Authorization Code". It consists of a 3 character alphabetic portion chosen by the user and a 4 digit numeric portion which is assigned by System/370 Services.

Access Codes allow Account holders to assign individual codes to each member of a class of students or a group of graduate students and to specify the amount of funds and the expiry date for each code. In other words, the Access Codes allow Account holders to effectively distribute and control the usage of funds.

For each Access Code you can:

1. specify a dollar limit
2. prohibit debit runs
3. prohibit printing of the balance on the HASP trailer page
4. specify an expiry date
5. prohibit priority 8 use on GPJS
6. specify a 3 character password
7. prohibit TSO service
8. prohibit online disk space
9. prohibit tape/disk rental/ storage
10. prohibit keypunching services

NB. At present, GPJS service cannot be prohibited but in the future, this also will be possible (e.g. have an Access Code for TSO service only).

...cont'd

S/370 ACCOUNTING CHANGES Cont'd...

The monthly accounting report for each Computer Centre Account to which Access Codes are assigned will show charges ordered by Access Code and within that by programmer name.

Current users of System/370 Services are not affected by these new facilities, unless they wish to take advantage of the new features.

Ms. Barbara Ablett, SF143, phone 928-5557, is the System/370 Services Access Code Clerk and you are urged to direct your enquiries concerning Access Codes to her. The Accounting Office, SF139, phone 928-7148 or 928-8702, will continue to handle enquiries concerning Computer Centre Accounts.

Stan Yagi

TSO, ONE YEAR LATER

During May 1973, UTCC started to work on TSO as a replacement for the CRJE system. The following article reviews some of the major points of interest to our TSO users for this last year.

TSO was installed on the 370/165 for internal testing, several weeks after the June 1973 installation of OS Release 21.7. By late July several users were participating in the acceptance testing of TSO, in addition to a large number of the Computer Centre staff. In the first week of August, TSO was made available for general use. To this point TSO was only being used as a replacement for the CRJE system, but the installation of additional memory in September permitted both TSO and CRJE to remain on the system for the fall term. The additional memory also permitted the use of full function time sharing with TSO. Early in November the full function facilities of TSO were released for general use. By mid January of 1974 CRJE was removed from the system, after two years of service.

Usage of TSO has now far surpassed that of CRJE. During the first week of April, 30 or more users were using TSO concurrently during peak hours, and the total connect time was over 200 hours per day.

Now that the school year is finished, the system work loads become much lower. This period will provide an ideal time to try those facilities of TSO that you have not had the time to explore and to use UTCC's computer systems more effectively.

For those TSO users who have had an opportunity to try only the RJE facilities, I would like to outline the other facilities available. TSO provides facilities for dataset management and manipulation, interactive program execution, applications, and interactive debugging aids. Another article in this newsletter describes in detail those facilities available for interactive FORTRAN and PL/1 programming. Additional articles will follow in subsequent editions of COMPUTERNEWS.

John Wettlaufer

USERBOOK SECTION 3 UPDATES ISSUED

Several chapters in USERBOOK SECTION 3 have been extensively revised and updated during the past few months. A summary of recent updates follows:

Update #27 (21Nov73)

This update is a complete replacement of Chapter 3.0 General Table of Contents for USERBOOK Section 3. The Table of Contents has been updated and reformatted to be more visually effective.

Update #28 (7Dec73)

This update is a complete replacement of USERBOOK 3.6110 High Speed Assembler G at UTCC. The $JOBA card is now free format and allows an increased number of options.

Update #29 (28Jan74)

This update revises topics contained in Chapters 3.2, 3.3 and 3.4. S/370 Services has introduced the /*SETUP statement. SETUP takes the place of:

1. The SPEC program which writes messages to the operator.

2. In the case of CLASS=C, the UTCC Job Form which was to accompany every run. SPEC and the UTCC Job Form were discontinued at midnight, February 17, 1974.

The following new items are documented in this update: the /*SETUP statement in 3.3117, the /*MESSAGE card in 3.3118, two programs, WTO and WTOR in 3.3118.

Update #30 (25Feb74)

Topics in Chapters 3.2 and 3.3 are revised by this update. CLASS C has been removed from use. All Class C jobs submitted to the system will be converted automatically to CLASS B at readin time if the user has not changed his job card.

Update #31 (28Feb74)

This update revises topics within Chapters 3.5 and 3.8. CRJE (Conversational Remote Job Entry) is no longer available on the system. This update removes most references to CRJE and provides documentation for TSO (Time Sharing Option).

Update #32 (31Jan74)

This update is a complete replacement of USERBOOK 3.7 Application Software. A KWIK index of the titles of every item in the Program Library for Optimization and Numerical Methods is included in 3.7140. An alphabetic index of basic descriptions for all items in the Program Library for Optimization and Numerical Methods is included in 3.7150. The ENGLIB routines, BBKNAP1, and GOLDEN are described in 3.7905. Samples of case studies which illustrate the extent of the problem solving facilities available at the University of Toronto Computer Centre are contained in 3.7910 and 3.7915.

Janet Campbell

INTERACTIVE FORTRAN AND PL/1 WITH TSO

When a FORTRAN or PL/1 job is executed in a batch environment, a simple procedure name is used, e.g. PLIGO or FORTGO. However, from the time the cards are read into the system to the time the user receives the output, there is no means of interacting with the job during any of its processing phases. On TSO the user may enter a single command that will compile and execute a program ("RUN" command), or a series of commands may be entered for the compile (FORT or PLI commands), linkedit (LINK command), and execution phases (CALL command). In between each of these phases, the user can interact with the system and perform corrections as required. Finally, while the problem program is executing on TSO, it may treat the terminal as any I/O device and therefore communicate with the user through it.

One of the biggest advantages of interactive program execution is the "interactive program debug" facility for program development, or those facilities that enable the execution time monitoring and manipulation of program execution, logic, variables, and source code during problem program execution. The most primitive means of achieving this is to code the interactive debug logic into the problem program. However, this is not very effective in terms of man hours of programming and computer resources. This type of debugging consists of including additional "PRINT"/"PUT" statements in the program to display variables during execution or including extra "READ"/"GET" statements to provide additional information for logic decisions at exectuion time. Both of these techniques can be effective but, unfortunately, they are very time consuming compared to the speed with which this can be done with an interactive debug processor. For both PL/1 and FORTRAN programs, there are full interactive debug processors available on TSO. Here are two brief examples of how interactive debug can be used to attack common types of program bugs.

The interactive debug processor for FORTRAN is called TESTFORT. To use it the user would compile the program in the normal manner, and instead of executing it with the CALL or LOADGO commands the TESTFORT command is used. The TESTFORT processor has two modes, one for entering subcommands and another for program execution. When TESTFORT is in subcommand mode, it prompts the user for commands to perform monitoring functions on the program, to change variables, or to start/continue program execution. As an example of the facilities available in TESTFORT, examine the following program:

```
 10    K=3
 20    CALL CHANGE(K)
 30    I=3/K
 40    PRINT *, I
 50    STOP
 60    END
 70    SUBROUTINE CHANGE(N)
 80    N=0
 90    RETURN
100    END
```

Although this program is trivial, it illustrates a common bug in programs. In statement 10 the variable "K" is initialized. However, the program fails at statement 30 since the variable "K"

...cont'd

INTERACTIVE FORTRAN Cont'd...

has been changed as it was initialized at statement 10. If the programmer wanted to find out exactly when the variable "K" was changed or to find the bug, the "WHEN" subcommand could be used. By entering "WHEN BUG (K=0)" in subcommand mode and then starting program execution by entering "GO", TESTFORT will trace through the program execution and notify the user when the variable "K" is set to zero. In this program, the value of K is set to zero in statement 20 after control has returned from subroutine "CHANGE".

The interactive debug processor for PL/1 is the PL/1 checkout compiler, which is invoked with the command name of PLIC. As an example of what this processor can do, we can look at a simple PL/1 program that has a statement that references an initialized variable in an arithmetic calculation. Consider the following program:

```
10   BUG: PROC OPTIONS(MAIN);
20   GET FILE(SYSIN)DATA(A);
30   B=C+A;
40   PUT FILE(SYSPRINT)DATA(B);
50   END BUG;
```

In line 30 an attempt is made to use the variable "C" which has not yet been initialized. When we first try to execute this program we get the following message.

```
"IEN1004I 2X 'C' HAS NO VALUE
     AT 30 IN BUG"
```

If this program had been executing in batch, the job would terminate at this point. However on TSO, using PLIC, we can recover from our error. The user could simply enter "C=3.0;" and then the subcommand "GO TO 30". This sequence would cause the variable C to be initialized and then restart execution at statement 30. Alternately, the user could enter "25 C=3.0;" and then "GO TO 25", and, as a result, statement 25 is added to the source, and by continuing execution at that statement the error condition is corrected and the program terminates normally.

Both TESTFORT and PLIC have many more features and subcommands not mentioned here. Further information about these and other interactive debug processors can be found in USERBOOK section 3.5020. Demonstrations of any of these facilities of TSO may be arranged by contacting John Wettlaufer at 928-6680.

John Wettlaufer

S/370 RELIABILITY

The reliability statistics for the month of April indicate a near record month as far as uptime performance is concerned. This improved reliability can be attributed to the 56% decrease in the hardware downtime minutes for April. In total, the uptime percentage was 99.3 and the average number of unscheduled IPL's per day was 0.52. The scheduled hours of production for April totalled 492.

...cont'd

Last Year's Comparative Figures

Month	% Uptime	Unsched IPL's/day	Month	% Uptime	Unsched IPL's/day
Jan 73	96.8	0.87	Sep 73	86.8	3.63
Feb 73	98.3	1.18	Oct 73	95.6	1.83
Mar 73	97.8	1.16	Nov 73	98.1	0.93
Apr 73	97.1	1.39	Dec 73	98.6	0.62
May 73	98.5	1.20	Jan 74	97.0	1.37
Jun 73	98.5	1.70	Feb 74	98.3	1.25
Jul 73	99.4	0.37	Mar 74	98.7	1.06
Aug 73	97.6	1.13	Apr 74	99.3	0.52

The percentage breakdown of total system downtime for April was: HARDWARE - 82 minutes (41.6%); SOFTWARE - 96 minutes (48.7%); OTHER - 19 minutes (9.7%). The major events contributing to these downtimes were as follows:

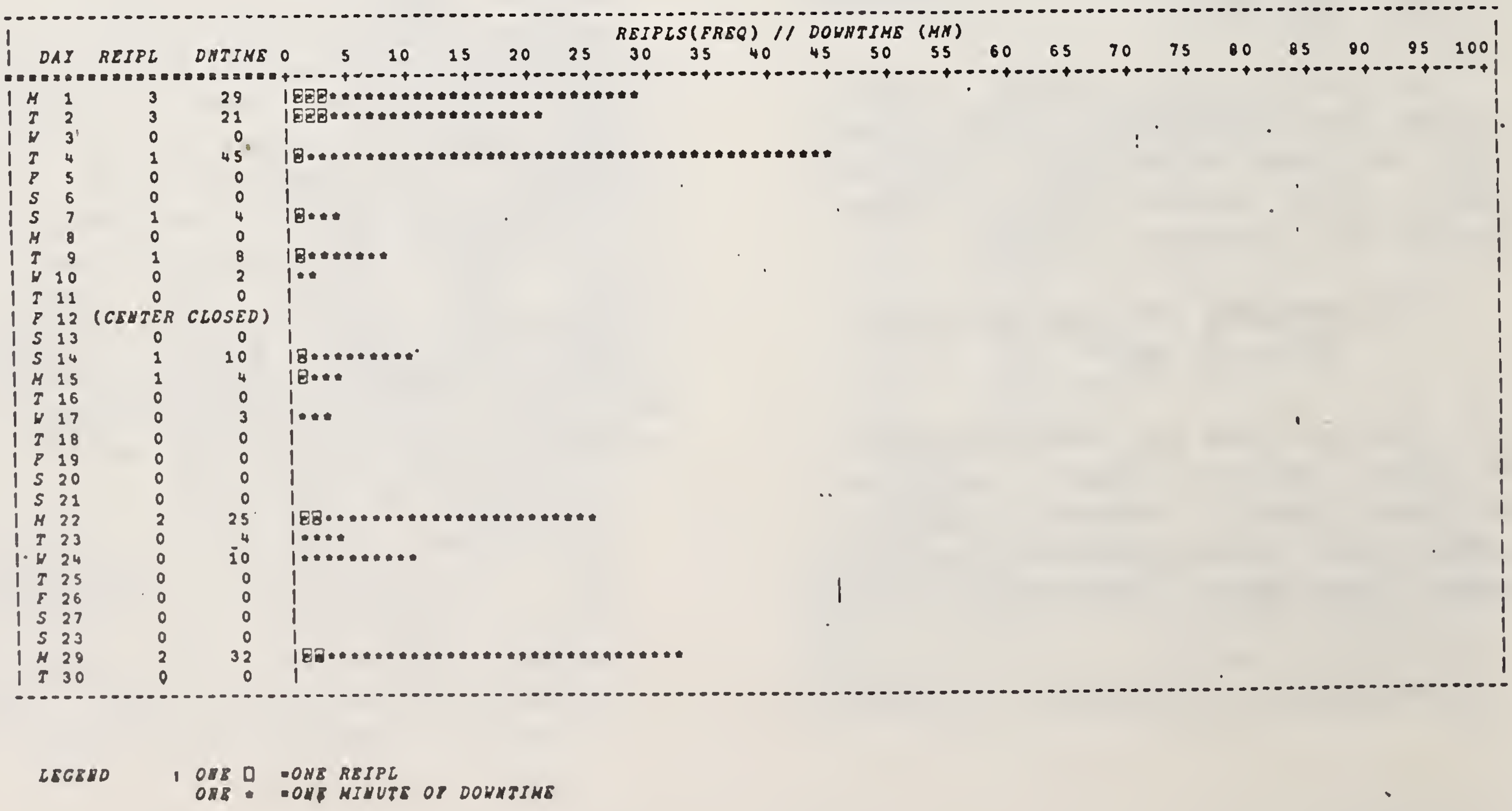
April 4 - 45 minutes of downtime were attributed to a hardware problem in the 3067 console unit. The problem occurred immediately after the operator was unable to reset a circuit breaker in this unit which prevented the machine from powering up completely. IBM was able to rectify the problem by replacing two bad cards in the 3067.

April 22 - 20 minutes of downtime were attributed to a software problem in which all system and user tasks enqueued on a dataset that had been created by a user's job. The user erroneously created a dataset with the same name as one of the system datasets, thus resulting in an unrecoverable enqueue condition. An IPL rectified the condition.

April 29 - 22 minutes of downtime were attributed to a HASP problem in which a "punch" job caused a HASP catastrophic error to occur. A standalone dump was generated which IBM is currently examining.

Dave Rauch

DOWNTIME_REPORT_ON___S/370__FOR_APR_74



```
------------------------------------------------------------------------------------------------------
|                                        REIPLS(FREQ) // DOWNTIME (MN)
| DAY  REIPL  DNTIME 0    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100|
*************************+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+|
| M  1      3      29   |□□□**************************
| T  2      3      21   |□□□******************
| W  3      0       0   |
| T  4      1      45   |□********************************************
| F  5      0       0   |
| S  6      0       0   |
| S  7      1       4   |□***
| M  8      0       0   |
| T  9      1       8   |□*******
| W 10      0       2   |**
| T 11      0       0   |
| F 12 (CENTER CLOSED)  |
| S 13      0       0   |
| S 14      1      10   |□*********
| M 15      1       4   |□***
| T 16      0       0   |
| W 17      0       3   |***
| T 18      0       0   |
| F 19      0       0   |
| S 20      0       0   |
| S 21      0       0   |
| M 22      2      25   |□□***********************
| T 23      0       4   |****
| W 24      0      10   |**********
| T 25      0       0   |
| F 26      0       0   |
| S 27      0       0   |
| S 23      0       0   |
| M 29      2      32   |□□******************************
| T 30      0       0   |
------------------------------------------------------------------------------------------------------


LEGEND      ONE □  =ONE REIPL
            ONE *  =ONE MINUTE OF DOWNTIME
```

```
                                _S/370__DOWNTIMES_DURING_APR_74

---------------------------------------------------------------------------------------------------------------------------
|                                                 TIME OF DAY (HOURS)                                                     |
|  DAY   RELOADS DNTIME  0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24|
=========================+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+|
| M  1      3     29     |                                                                 S  S  H                        |
| T  2      3     21     |  H                                 S S                                                         |
| W  3      0      0     |                                                                                                |
| T  4      1     45     |                                   HHH                                                          |
| F  5      0      0     |                                                                                                |
| S  6      0      0     |                                                                                                |
| S  7      1      4     |                                    H                                                           |
| M  8      0      0     |                                                                                                |
| T  9      1      8     |                                                                S                               |
| W 10      0      2     |                               I                                                                |
| T 11      0      0     |                                                                                                |
| F 12  (CENTER CLOSED)  |                                                                                                |
| S 13      0      0     |                                                                                                |
| S 14      1     10     |                                                           H                                    |
| M 15      1      4     |                                                                                     H          |
| T 16      0      0     |                                                                                                |
| W 17      0      3     |                               I                                                                |
| T 18      0      0     |                                                                                                |
| F 19      0      0     |                                                                                                |
| S 20      0      0     |                                                                                                |
| S 21      0      0     |                                                                                                |
| M 22      2     25     |                                          S  SS                                                 |
| T 23      0      4     |                               I                                                                |
| W 24      0     10     |                               I                                                                |
| T 25      0      0     |                                                                                                |
| F 26      0      0     |                                                                                                |
| S 27      0      0     |                                                                                                |
| S 28      0      0     |                                                                                                |
| M 29      2     32     |                                                   SS                            S              |
| T 30      0      0     |                                                                                                |
---------------------------------------------------------------------------------------------------------------------------
LEGEND :    H FOR HARDWARE
            S FOR SOFTWARE                 STATISTICS
            O FOR OPERATIONAL
            U FOR UNEXPLAINED
            I FOR LATE IPL

                                       TOTAL SCHEDULED HOURS OF PRODUCTION :  492
                                       TOTAL DOWNTIME (MN)  :  197 , AVG/DAY :   6.79 , AVG/PROD HOUR :   0.19
                                       TOTAL REIPL'S        :   15 , AVG/DAY :   0.52
                                       DOWNTIME RATE IS     :  0.67 PERCENT OF SCHEDULED PRODUCTION HOURS
```

HSJS NEWS AND MONTHLY STATISTICS

The chart below compares the number of jobs processed during the last 12 months of this current academic year (May 1973 - April 1974) with the same period for the previous year. During this past year, the number of jobs increased 28.7% from 1,132,527 to 1,457,135. The number of cards read increased 18.0% from 150,637,000 to 177,797,000, while the number of lines printed rose 41.3% from 150,637,000 to 212,850,000.

To put these figures into perspective, we have made a few comparisons. If 40 lines were printed per page and the output placed in a pile it would create a stack of paper 1612 feet high or 193 feet shorter than the CN Tower and would weigh over 72,562 pounds. There would be enough paper to cover every floor of the Commerce Court Building twice over, or to stretch 923 miles. If the cards were placed in card boxes and laid end to end, the line would be over 16 miles long; long enough to WARDEN station along the subway line, with enough to cover the St. George to Yonge and Bloor section of the Yonge University Line as well. The total card weight would be 677,866 pounds or equivalent to the weight of 338 Volkswagons. There would be enough cards to create a swath 215 feet wide along the entire TTC subway lines.

...cont'd

SYSTEM/370 SERVICES

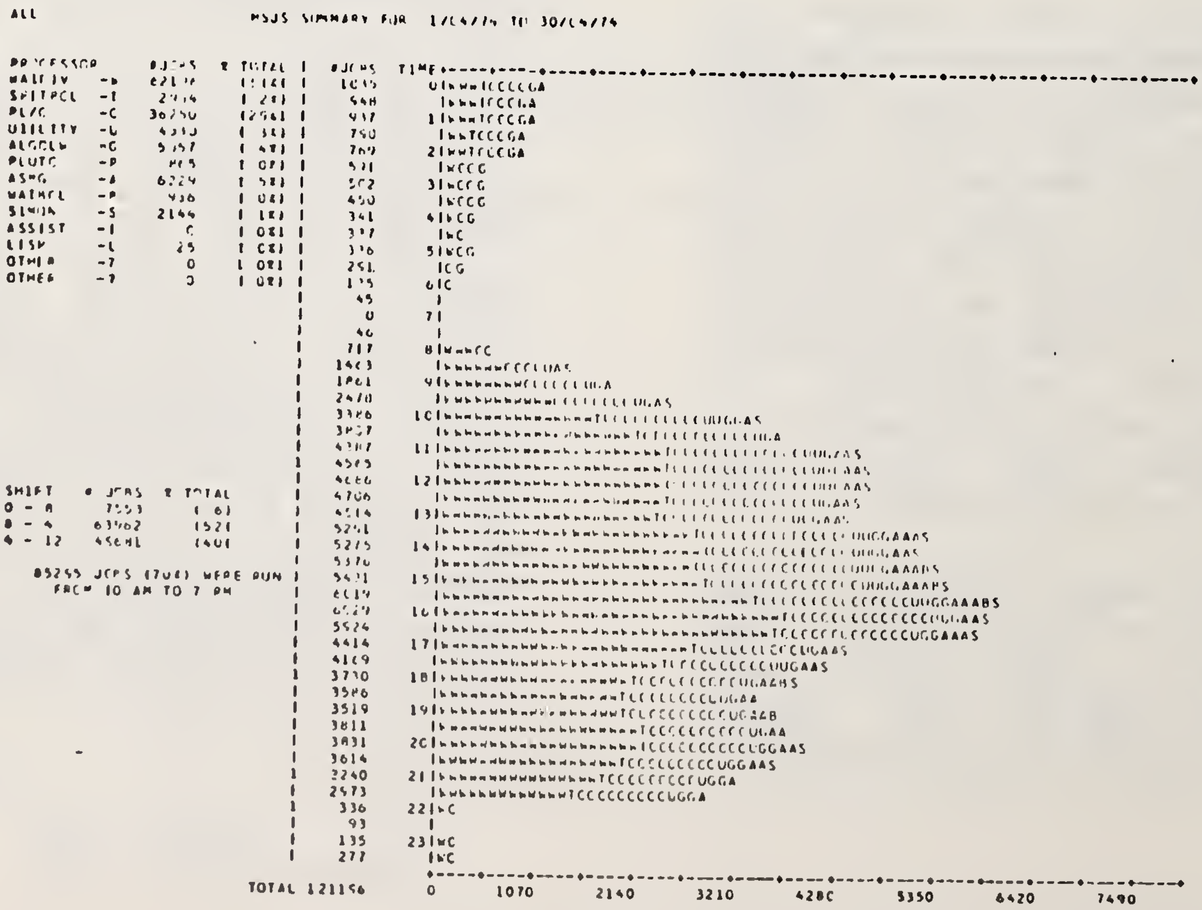
JOBS	73-74	72-73	Change %
May	84,105	57,052	+ 47.4
June	41,298	57,033	- 27.6
July	56,201	44,988	+ 24.9
August	50,040	39,870	+ 25.5
Sept.	92,522	75,195	+ 23.0
Oct.	205,914	134,886	+ 52.6
Nov.	221,457	147,899	+ 49.7
Dec.	109,128	77,601	+ 40.6
Jan.	129,336	93,553	+ 38.2
Feb.	156,159	140,664	+ 11.0
March	189,767	158,437	+ 19.8
April	121,208	105,349	+ 15.1
Total	1,457,135	1,132,527	+ 28.7

The following charts summarize the HSJS activity for the month of April. The CPU time recorded is in hundredths (.01) of a minute.

Mark Tapia

```
                         HSJS RESOURCE USAGE BY PROCESSOR FOR  1/04/74 TO 30/04/74

                 |  TOTAL   |  TOTAL   |  TOTAL   |  TOTAL   ||  AVG    |  AVG   |  AVG   ||
                 |  #JOBS   |   CPU    |  CARDS   |  LINES   ||CPU*10   | CARDS  | LINES  ||
-----------------------------------------------------------------------------------------------
WATFIV    -W |    62196 |    65647 | 8046638 | 9918174 ||     10 |    129 |    159 ||
SPITBOL   -T |     2964 |     2924 |  442288 |  547713 ||      9 |    149 |    184 ||
PL/C      -C |    36250 |    64009 | 6558537 |11125002 ||     17 |    180 |    306 ||
UTILITY   -U |     4530 |     1476 |  816178 |  952040 ||      3 |    180 |    210 ||
ALGOLW    -G |     5057 |     5397 |  918918 | 1261705 ||     10 |    181 |    249 ||
PLUTO     -P |      865 |     1710 |  106042 |  176273 ||     19 |    122 |    203 ||
ASMG      -A |     6229 |    12983 | 1354776 | 2275723 ||     20 |    217 |    365 ||
WATBOL    -B |      936 |     1645 |  281680 |  178945 ||     17 |    300 |    191 ||
SIMON     -S |     2144 |      188 |  151156 |  168744 ||      0 |     70 |     78 ||
ASSIST    -I |        0 |        0 |       0 |       0 ||      0 |      0 |      0 ||
LISP      -L |       25 |        8 |    2741 |    4098 ||      3 |    109 |    163 ||
OTHER     -? |        0 |        0 |       0 |       0 ||      0 |      0 |      0 ||
OTHER     -? |        0 |        0 |       0 |       0 ||      0 |      0 |      0 ||
-----------------------------------------------------------------------------------------------
           TOTAL 121196     155987  18678954  26608417         12      154      219
```



INTERACTIVE SYSTEMS RELIABILITY

The uptimes achieved for the month of April for each of APL, ATS, and CPS were 98.77%, 98.75% and 98.63% of scheduled production, respectively. The total number of scheduled hours of operation during the month of April was 473.5. In addition to the scheduled time, APL, ATS and CPS were also available for approximately 148 hours of unattended weekend operation.

During the month of April, CPS services were unavailable during the hours 6 p.m. to 10 p.m., Monday through Friday. The reduction in schedule for CPS was necessary because shortages in core storage prohibited new software testing concurrent with CPS operation. The following table summarizes the time lost out of scheduled hours of production due to system failures for each of the systems: six unscheduled IPL's were required as a result of the failures.

Kam Jain

DATE	DOWNTIME (minutes)			REASON
	APL	ATS	CPS	
Mon. Apr. 1	21	18	25	*Disk I/O Error (HARDWARE)
Tue. Apr. 2	14	-	-	Operating System Problems (SOFTWARE)
Mon. Apr. 8	243	245	247	Channel Error (HARDWARE)
Sat. Apr. 13	14	17	27	*ATS Abend (SOFTWARE)
Mon. Apr. 15	16	9	11	*APL Slowdown (APL SOFTWARE)
Wed. Apr. 17	-	4	-	ATS software
Mon. Apr. 22	14	9	10	*APL Slowdown (SOFTWARE)
Thu. Apr. 25	-	8	-	ATS Abend SOF1 (SOFTWARE)
Mon. Apr. 29	18	20	21	*Solid System Tscan (SOFTWARE)
"	9	11	12	*Hasp Catas.Error (SOFTWARE)
Total	349	341	353	*IPL Required

RECENT ACQUISITIONS IN THE DEPARTMENT OF COMPUTER SCIENCE LIBRARY

May 2, 1974

Annual review of information science and technology. v. 8 (1973)

Artiaga, L. and L.D. Davis.
Algorithms and their computer solutions.
Columbus, Ohio, Merrill, 1972.

Berge, C.
Graphs and hypergraphs. (Tr. from the French.)
Amsterdam, North-Holland, 1973.

Calter, P.
Problem solving with computers.
New York, McGraw-Hill, 1973.

Canadian computer census, 1973.

Chartrand, R.L., ed.
Computers in the service of society.
New York, Pergamon Press, 1973.

Chu, Yaohan.
Computer organization and microprogramming.
Englewood Cliffs, N.J., Prentice-Hall, 1972.

Conference on the Numerical Solution of Differential Equations, Dundee, 1973.
Proceedings, ed. by G.A. Watson.
Berline, Springer-Verlag, 1974.

Grey, L.D.
A course in APL/360 with applications.
Reading, Mass., Addison-Wesley, 1973.

Hetzel, W.E., ed.
Program test methods.
Englewood Cliffs, N.J., Prentice-Hall, 1973.

Hoffman, L.J.
Security and privacy in computer systems.
Los Angeles, Melville Pub. Co., 1973.

IFAC Symposium on Digital Simulation of Continuous Processes, Győr, Hungary, 1971.
DISCOP PREPRINTS. 2 v.

...cont'd

Kaimann, R. A.
Structured information files.
Los Angeles, Melville Pub. Co., 1973.

Katzan, H., Jr.
Operating systems: a pragmatic approach.
New York, Van Nostrand Reinhold, 1973.

Leininger, J.E. and Gilchrist, B., eds.
Computers, society and law: the role of legal education.
Montvale, N.J., AFIPS Press, 1973.

Lewin, D.
Theory and design of digital computers.
London, Nelson, 1972.

Lightstone, A.H.
Concepts of calculus.
New York, Harper & Row, 1965.

National Computer Centre.
A world list of computer periodicals.
Manchester, 1970.

Preparata, F.P. and Yeh, R.T.
Introduction to discrete structures for computer science and engineering.
Reading Mass., Addison-Wesley, 1973.

Rude, P.A. and Page, J.A.
Introduction to computers.
New York, McGraw-Hill, 1974.

Shampine, L.F. and Allen, R.C., Jr.
Numerical computing: an introduction.
Philadelphia, W.B. Saunders, 1973.

Sloane, N.J.A.
A handbook of integer sequences.
New York, Academic Press, 1973.

Stetter, H.J.
Analysis of discretization methods for ordinary differential equations.
New York, Springer-Verlag, 1973.

Symposium and Summer School on Mathematical Foundations of Computer Science, High Tatras, Czechoslovakia, Sept. 1973.
Mathematical foundations of computer science.
Bratislava, Computing Research Centre, 1973.

University of Windsor Seminar on Canadian-American Relations, 14th, Windsor, Ontario, 1972.
Information processing and the right to privacy: a crossroads decision for North Americans, ed. by J.A. Murray
Windsor, University Press, 1973.

UTCC DIRECTORY

	ROOM	PHONE 928-
DIRECTOR		
John C. Wilson	49 St.Geo	6496
ASSOCIATE DIRECTOR		
Al Heyworth	49 St.Geo	4936
ASSOCIATE DIRECTOR		
Dave McNaughton	SF143	6281
USER LIAISON OFFICER		
Bill Greene	SF128A	2694
Information Office	SF128	4990 or 4991
AUTHORIZATION CLERKS		
Yvonne Bowen (Interactive)	49 St.Geo	8703
Barbara Ablett (GPJS, TSO)	SF143	5557
Krishna Patnaik (CRF)	SF207	8853
Edith Kovacs (7094)	NP1207	7094
S/370 SERVICES		
MANAGER, S/370 SERVICES		
Stan Yagi	SF113	7331
MANAGER, S/370 OPERATIONS		
Derry Cox	SF113	7092
MANAGER, S/370 SOFTWARE		
Rein Mikkor	SF113	5058
SYSTEM HARDWARE SUPERVISOR		
Eugene Siciunas	SF114	4967
PROGRAM ADVISERS	SF117	8599
INTERACTIVE TERMINAL SYSTEMS		
MANAGER		
Sam Goldfarb	49 St.Geo	3787
CAL COORDINATOR		
Ford Clancy	49 St.Geo	6021
7094 SERVICES		
MANAGER		
Joyce Walton	BT1207	7094
COMPUTER RESEARCH FACILITY		
MANAGER		
Dennis Smith	SF214B	4086

JOB STATUS QUERIES:	
SYSTEM/370	7373
7094	7094
INTERACTIVE TERMINAL SYSTEMS:	
System Status	6234
APL	7200
ATS	7100
CPS	6200
TSO:	
2741 Terminal Malfunctions	7107
2741	7303
TTY	7390

UTCC COMPUTER EQUIPMENT

SYSTEM/370 MODEL 165

- located in SF103/105/112
- provides General Purpose Job Stream, High Speed Job Stream and TSO services
- 3072K bytes of memory
- 1 drum
- 12 disk drives IBM (3330)
- 8 disk drives IBM (2314)
- 6 magnetic tape drives (4 9-track and 2 7-track)
- 6 display consoles
- 6 printers
- 5 card readers
- 1 card punch
- 7 remote batch terminals
- 1 paper tape reader
- Calcomp plotters (11" and 30")
- Gould plotter (11")
- OS/MVT with HASP

SYSTEM/360 MODEL 65

- located in McLennan Physical Laboratories
- provides Interactive Systems Service
- 1536K bytes of core
- 16 disk drives (2314)
- 2 9-track magnetic tape drives
- 1 printer
- 1 card reader
- 1 card punch
- 140 typewriter terminals
- OS/MVT with APL, ATS, and CPS

7094 II

- located in Room 1203 Burton Tower
- 32K words of core
- 1 disk
- 8 magnetic tape drives
- input/output via a 1401 computer

IBM/360 MODEL 44

- located in SF207
- 256K core
- 10 disk drives (8 2314's and 2 2311's)
- 2 2401 tape drives
- 2 1403 printers
- 2 2501 card readers
- 2701 data adapter
- 2250 video display unit
- RADDTS
- Calcomp microfilm plotter
- minicomputers
- VW01 Digitizing Tablet
- DEC GT40

UNIVERSITY OF TORONTO
COMPUTER CENTRE,
TORONTO, CANADA.